

Audit



Report

OFFICE OF THE INSPECTOR GENERAL

**SUMMARY AUDIT REPORT ON DOD
VALUE ENGINEERING PROGRAMS**

Report No. 97-209

August 26, 1997

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1999/013 143

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Acronyms

ASN(RDA)	Assistant Secretary of the Navy (Research, Development, and Acquisition)
DCMC	Defense Contract Management Command
FAR	Federal Acquisition Regulation
MDAP	Major Defense Acquisition Program
NAVFAC	Naval Facilities Engineering Command
NAVSEA	Naval Supply Systems Command
OMB	Office of Management and Budget
PAT	Process Action Team
TOA	Total Obligation Authority
VE	Value Engineering
VECP	Value Engineering Change Proposal
VEP	Value Engineering Proposal



**INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884**



August 26, 1997

**MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION
AND TECHNOLOGY
ASSISTANT SECRETARY OF THE NAVY (RESEARCH,
DEVELOPMENT AND ACQUISITION)
ASSISTANT SECRETARY OF THE AIR FORCE
(ACQUISITION)
DIRECTOR, DEFENSE LOGISTICS AGENCY
AUDITOR GENERAL, DEPARTMENT OF THE ARMY**

SUBJECT: Summary Audit Report on DoD Value Engineering (Report No.97-209)

We are providing this summary audit report for information and use. The audit was requested by the Office of the Under Secretary of Defense for Acquisition and Technology. Office of Management and Budget Circular No. A-131 required that Agency heads request Inspectors General to audit value engineering programs 2 years after issuance of the Circular. This audit report presents the results of an audit jointly performed by the Inspector General, DoD, and the Military Department Audit Agencies of the value engineering programs in the Military Departments and the Defense Logistics Agency. Because this report contains no findings or recommendations, no written comments were required, and none were received.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Garold E. Stephenson, Audit Program Director, at (703) 604-9332 (DSN 664-9332). See Appendix C for the report distribution. The audit team members are listed inside the back cover.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 97-209
(Project No. 5CH-5038.03)

August 26, 1997

Summary Audit Report on DoD Value Engineering Programs

Executive Summary

Introduction. This report summarizes the results of the joint audit of the DoD Value Engineering Programs. The audit was requested by the Office of the Under Secretary of Defense for Acquisition and Technology to satisfy the requirement in Office of Management and Budget Circular No. A-131, "Value Engineering," May 21, 1993, that agency value engineering programs be audited 2 years after issuance of the Circular. During the audit, the Inspector General, DoD, and the Army and Air Force Audit Agencies issued 12 audit reports on DoD Value Engineering Programs. Eight reports discussed the Army Value Engineering Program, one report discussed the Navy Value Engineering Program, two reports discussed the Air Force Value Engineering Program, and one report discussed the Defense Logistics Agency Value Engineering Program.

Office of Management and Budget Circular No. A-131 requires Federal agencies to use value engineering as a management tool, where appropriate, to ensure realistic budgets, to identify and remove nonessential capital and operational costs, and to improve and maintain optimum quality of program and acquisition functions. The DoD Value Engineering Program involves both in-house and contractor programs. The DoD has reported more value engineering savings than other Federal agencies. For FY 1994, the DoD reported value engineering savings of \$855 million and investment costs of \$248 million. For FY 1995, DoD reported value engineering savings of \$734.4 million and investment costs of \$43.9 million.

Audit Objectives. The audit objective was to determine whether DoD value engineering policies, procedures, and implementation of the revised Office of Management and Budget Circular No. A-131 were adequate, and the reported value engineering savings for FY 1994 and FY 1995 were valid. The audit also assessed how extensively value engineering was included in contracts, whether contractors believed they were encouraged to participate in the value engineering program, and how value engineering related to other streamlining or savings initiatives. The audit also evaluated the adequacy of management control programs applicable to the VE programs.

Audit Results. Opportunities existed to significantly enhance the DoD Value Engineering Program. DoD activities were not using or making effective use of value engineering, and contractor use of value engineering on DoD contracts varied. The Military Departments and the Defense Logistics Agency were reporting significant cost reductions from value engineering in accordance with the intent of Circular No. A-131. However, those organizations needed to improve the consistency, accuracy, and completeness of reported value engineering savings and costs. During FY 1996, the Under Secretary of Defense for Acquisition and Technology took several positive steps to increase the use of value engineering in DoD acquisition programs. Those steps included approving a Value Engineering Strategic Plan that required Military Departments and Defense Agencies to establish value engineering savings goals and take other actions to emphasize the use of value engineering as a cost reduction tool,

and established a Value Engineering Process Action Team to identify additional actions to overcome barriers to the use of value engineering.

This report contains no recommendations because the management comments and actions to the recommendations in the 12 proceeding audit reports were generally responsive, and the Under Secretary of Defense for Acquisition and Technology has taken actions to increase the use of value engineering and to improve management of the value engineering programs. The 12 audit reports contained 27 recommendations that included developing guidance that differentiated value engineering from other cost reduction initiatives, and actions to improve the reporting of value engineering savings and costs. The reports also recommended that Military Departments and the Defense Logistics Agency promote the use of value engineering in acquisition programs.

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Part I - Audit Results

Audit Background

This report summarizes the results of a joint audit performed of the DoD value engineering (VE) programs by the Inspector General, DoD, and Military Department Audit Agencies. The audit of the VE programs was requested by the Office of the Under Secretary of Defense for Acquisition and Technology. Office of Management and Budget (OMB) Circular No. A-131, "Value Engineering," May 21, 1993, requires that agency VE programs be audited 2 years after issuance of the Circular. The Inspector General, DoD, and the Army and Air Force Audit Agencies issued 12 audit reports on the DoD VE programs. Eight reports discuss the Army VE Program, one report discusses the Navy VE Program, two reports discuss the Air Force VE Program, and one report discusses the Defense Logistics Agency (DLA) VE Program. The audit reports are listed in Appendix A.

Policy on Use of Value Engineering. OMB Circular No. A-131 requires Government-wide use of VE and requires Federal agencies to implement VE techniques in contractor and in-house programs and projects. The Circular states that:

Federal agencies shall use VE as a management tool, where appropriate, to ensure realistic budgets, identify and remove nonessential capital operating costs, and improve and maintain optimum quality of program and acquisition functions. Senior management will establish and maintain VE programs, procedures and processes to provide for the aggressive, systemic development and maintenance of the most effective, efficient, and economical and environmentally-sound arrangement for conducting the work of agencies, and to provide a sound basis for identifying and reporting accomplishments.

Federal Acquisition Regulation (FAR), Part 48, "Value Engineering," implements the Circular on Government contracts. The FAR provisions are implemented in Defense Federal Acquisition Regulation Supplement (DFARS) Part 248, "Value Engineering;" DoD Handbook 4245.8-H, "Value Engineering," March 1986; and DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information System Acquisition Programs," March 15, 1996. Each of the Military Departments and the DLA and many of their subordinate commands and organizations have issued supplemental guidance on VE.

Statutory Requirement for VE. "The Federal Acquisition Reform Act of 1996," section 4306, ("National Defense Authorization Act of Fiscal Year 1996," Public Law 104-106), amended the Office of Federal Procurement Policy Act (41 U.S.C. 401 et seq.) by adding Section 36, "Value Engineering." Section 36 mandates that each executive agency establish and maintain cost-effective VE procedures and processes.

History and Definition of VE. VE originated in industry largely as a result of material and labor shortages experienced during World War II. The initial successes in developing functional, less costly alternatives led to an analytical discipline that was structured to challenge the proposed or usual ways of doing things and to systematically search for improved and less costly alternatives. This structured approach came to be known as VE and is also referred to as value analysis, value management, or value improvement. DoD defines VE as a functional analysis methodology that identifies and selects the best value alternative for designs, materials, processes, systems, and program documentation.

In-House and Contractor VE. The DoD VE Program has two distinct parts: an in-house portion and a contractor portion. The in-house portion relies on either DoD personnel or VE consultants to perform VE, and DoD benefits from all of the savings or cost avoidances generated. It is implemented through VE proposals (VEPs). The contractor portion is VE performed by contractors on their DoD contracts. The contractors generally share the savings with the Government. The VE actions are implemented through the submission and approval of VE change proposals (VECPs).

During FYs 1994 and 1995, DoD reported total VE savings of \$855 million and \$734 million, respectively. For the same periods, DoD reported VE investment costs of \$248 million and \$43.9 million, respectively. DoD reported that 277 full-time equivalent DoD personnel worked on VE during FY 1994 and that about 248.5 personnel worked on VE during FY 1995.

Audit Objectives

The overall audit objective was to determine the adequacy of DoD VE policies, procedures, and implementation of the revised OMB Circular No. A-131 and the validity of reported VE savings during FY 1994 and FY 1995. The audit assessed how extensively the VE program was included in contracts, whether contractors believed they were encouraged to participate in the VE program, and the relationship of VE to other streamlining or savings initiatives. The audit also evaluated the adequacy of the management controls program applicable to the VE programs.

Finding A. Implementation and Use of Value Engineering

Although each of the Military Departments and DLA reported significant savings for VE during FYs 1994 and 1995, opportunities existed to expand the use of VE techniques for DoD and contractor programs and projects. Many DoD activities and contractors were either not using or were making limited use of VE. In FY 1996, senior DoD managers took several positive steps to emphasize VE in DoD acquisition programs. The Under Secretary of Defense for Acquisition and Technology approved a VE Strategic Plan that required the Military Departments and Defense Agencies to establish VE savings goals and initiate other actions to increase VE, and established a process action team to identify additional actions needed to increase the use of VE.

Opportunities to Expand the DoD Value Engineering Program

VE Savings Reported by the DoD Components. The savings reported by DoD from VEPs and VECs accounted for less than one percent of total obligation authority (TOA) during FYs 1994 and 1995, and savings reported for both VEPs and VECs declined in FY 1995. DoD reported benefits of about \$688 million from in-house VEPs and about \$167 million from contractor-initiated VECs in FY 1994, and about 638 million for VEPs and about \$96 million, for VECs in FY 1995. The reported VE savings only accounted for about .3 percent of TOA during each period, as shown in Table 1.

Table 1 shows reported VE savings as percentage of TOA.

Table 1. FY 1994 and FY 1995 VEPs and VECPs Reported Savings(\$ in millions)		
	<u>FY 1994</u>	<u>FY 1995</u>
In-House VEPs	\$688.20	\$638.44
Contractor-Initiated VECPs	166.77	95.94
Total VE Savings	\$854.97	\$734.38
TOA	\$251,953.00	\$253,954.00
Percentage of TOA Reported as VE Savings	.3	.3

The data indicate that the DoD Components did not utilize VE to significantly reduce program or process costs.

VE Activity on Major Acquisition Programs. Many major Defense acquisition programs (MDAPs) did not have any reported VE activity during FYs 1994 and 1995. During FY 1994, of 79, only 14 MDAPs (7 Army, 1 Navy, 3 Air Force, and 3 Ballistic Missile Defense Organizations) reported VECP activity and for FY 1995, of 82, only 16 MDAPs (11 Army, 2 Navy, 1 Air Force, and 2 Ballistic Missile Defense Organizations) reported activity.

Contractor Perspectives on Performing VE. Many contractors were reluctant to perform VE and submit VECPs on Defense acquisition programs. Of 15 contractors contacted, two contractor representatives stated that they stopped submitting VECPs because Government program officials were no longer interested in VE. Four other contractor representatives stated that their companies performed VE, but program offices and contracting officers placed a low priority on processing VECPs. This low priority resulted in long processing times and delays which discouraged VECP submissions. For the other nine contractors, seven representatives stated that the Army supported their submission of VECPs. However, five of the nine contractor representatives stated the Navy had not supported their VE efforts, and two contractor representatives stated that the Air Force did not support their VE efforts.

Use of VE Clauses in Contracts. Contracting officers were generally complying with the requirement to insert the VE incentive clause from FAR 52.248-1 into contracts that were expected to exceed \$100,000. The audit identified only 10 contracts that did not have the VE incentive clause because contracting officers unintentionally omitted the clause. Seven contracts, valued at \$4.4 million, were awarded by the Defense Personnel Support Center and the

Finding A. Implementation and Use of Value Engineering

Navy awarded three contracts, valued at \$31.5 million, to the David Taylor Research Center.

Oversight and Promotion of Contractor VE by Contract Administrators. When contracts were received without a VE clause, the Defense Contract Management Command (DCMC), which assists the procuring contracting officers and program offices in administering contracts, was not issuing deficiency reports. DCMC did not actively promote and track Defense contractor VE programs and did not report any VE accomplishments during FY 1994 and FY 1995. DCMC maintained incomplete data on VECs submitted by contractors. These conditions occurred because the DLA's annual Customer Assessment Report, which surveys DoD program offices and buying activities, rated the administration of VECs as a low priority; procuring contracting officers and program offices had often ignored deficiency reports that were prepared in the past by the contract administration offices; and DCMC officials believed that the DoD buying activities had primary responsibility for promoting contractor participation.

Processing and Implementing VECs. DoD program and contracting offices could reduce the processing time for VECs. FAR 48.103(b) states:

The contracting officer is responsible for accepting or rejecting the VEC within 45 days from its receipt by the Government. If the Government will need more time to evaluate the VEC, the contracting officer shall notify the contractor promptly in writing, giving the reasons and the anticipated decision date.

During FY 1995, program and contracting offices did not approve about one-third of the VECs within 45 days, and often did not document notifications of required extensions to contractors.

Finding A. Implementation and Use of Value Engineering

Table 2 provides data on the processing of approved VECPs during FY 1995.

Table 2. Processing of Approved VECPs during FY 1995					
	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>DLA</u>	<u>Total</u>
Approved VECPs	115	34	25	15	189
Number Exceeding 45 Days to Process	32	11	10	14	67
Average Days to Process	230	98	132	165	

The time required by DoD program and contracting offices to review and approve a VECP varied significantly. The Naval Facilities Engineering Command (NAVFAC) and the Army Corps of Engineers had the lowest average processing times (30 days and 45 days, respectively) and commands supporting weapons systems program offices had the higher averages. For example, the Army Aviation and Troop Support Command required an average of 560 days to approve 11 VECPs, and the Naval Air Systems Command required an average of 240 days to approve 11 VECPs. After approval of the VECPs, contracting offices required additional time to implement VECPs. DoD had not established a performance measure for the average cycle time that a DoD personnel should take to review, approve, and implement VECPs. DoD had a performance measure of 180 days for a similar event, the definitization of an unpriced action after receipt of a qualifying proposal, during which contracting officers are required to complete all review and negotiation activities.

Assignment of VE Managers. Responsibility for VE had not been clearly delineated at all DoD organizations. The Navy and Air Force had not assigned VE managers at several major commands, including the Naval Sea Systems Command, the Military Sealift Command, the Electronic Systems Center, and the Oklahoma City Air Logistics Center. Army participation in the VE program has decreased significantly to the point that the Army Materiel Command and the Corps of Engineers are the only participants. The Army had not assigned VE managers to five organizations that were responsible for minor construction, maintenance and repair projects. Several other organizations, that were also responsible for minor construction, maintenance and repair projects, identified points of contact, but did not have active VE programs.

Use of VE on Military Construction Projects. The Army Corps of Engineers and NAVFAC identified construction projects with the greatest potential for VE and effectively used VE studies to reduce project costs. However, because of a lack of emphasis, the Air Force did not effectively use VE to reduce construction project costs. Consequently, reviews at five Air Force commands showed that VE studies were planned on only 34 of 170 military construction

Finding A. Implementation and Use of Value Engineering

projects initiated during FYs 1994 and 1995, and only 19 of the 34 planned studies were accomplished. The five commands reviewed also did not submit required VE annual plans to the Office of the Air Force Civil Engineer during the FYs 1992 through 1995 reporting periods.

DoD Value Engineering Strategic Plan. The Under Secretary of Defense for Acquisition and Technology approved a DoD VE Strategic Plan on August 13, 1996. The plan was developed by the DoD VE Executive Steering Group, which the Under Secretary had chartered December 10, 1993, to develop a comprehensive, coordinated, and realistic DoD VE Program.

The DoD VE Strategic Plan requires more extensive use of VE by DoD program and acquisition managers to eliminate unnecessary requirements, reduce life-cycle costs, and meet operational requirements under a constrained Defense budget. One notable objective of the plan is to increase the use of VE in the MDAPs. The plan established savings goals of one percent of TOA for savings from contractor-developed VECs, and one percent of TOA for savings from VECs developed by DoD personnel and VE consultants. One of the goals of the plan is to document VE activity in 100 percent of the MDAPs. The plan also established a six percent savings goal of the total estimated cost of facilities design and construction projects studied.

The plan did not distinguish or specify the relationship of VE to other cost-reduction initiatives, such as spare parts and component breakout studies and the single process initiative, where a systemic analysis is performed to identify alternatives to obtain the best value. Also, the plan did not sufficiently detail criteria to use in identifying projects for VE or for computing savings and associated costs. The plan did not clarify the intent or provide for consistent reporting under existing OMB and DoD VE guidance.

VE Process Action Team. In September 1996, the Principal Deputy Under Secretary of Defense for Acquisition and Technology chartered a process action team (PAT) to: define the role of VECs in the present acquisition environment, identify program manager and contractor barriers to VECs, and develop a long-term action plan to remove or minimize those barriers.

The PAT concluded that FAR inadequacies, funding sources and restrictions, and the lack of senior-level emphasis discouraged contractors from proposing VECs that could produce significant savings. The PAT recommended:

- The Under Secretary of Defense for Acquisition and Technology develop cost-reduction goals that are aggressive but achievable, and send a memorandum to Service Acquisition Executives urging promotion and aggressive leadership towards the VEC process.
- Management of the VEC process be improved by measuring and reporting process performance.
- Develop a separate funding source for both collateral VE savings and implementation costs. Require that funding solutions incorporate flexibility

Finding A. Implementation and Use of Value Engineering

through increases in share rates and the number of years that a contractor receives compensation for VE savings.

- Educate the acquisition work force in cost reduction initiatives and how they apply by having the Director, Test System Engineering and Evaluation integrate a VE/VECP module into the Acquisition Deskbook for the PM course and develop a VE home page.

On April 14, 1997, the Defense Manufacturing Council endorsed the PAT's action plan and schedule to implement the actions by August 1997.

Increases in Contractor Incentive to Submit VECs. In an effort to increase contractor incentives to submit VECs, the Director of Defense Procurement on June 27, 1997, authorized the Military Departments and Defense Agencies to deviate from the requirements of FAR 48.001, 48.102, 48.104 and 48.201 and the clause at 52.248-1 "Value Engineering," when providing VE incentives to contractors. The class deviation authorizes contracting officers to provide the sharing period from the current 3 years to a range of 3 to 5 years; the incentive sharing arrangement from the current fixed rate for the contractor of 50 percent to a range of 50 to 75 percent; and the current fixed contractor shared collateral savings rate of 20 percent to a range of 20 to 100 percent. The deviation authorizes contracting officers to use a revised VE clause in contracts.

Conclusion

Although DoD reported significant savings for VE during FYs 1994 and 1995, opportunities existed to expand the use of VE on DoD programs and projects. Many DoD organizations and contractors were either not using or making limited use of VE. During FY 1996, DoD took several positive steps to increase the use of VE. The implementation of the VE Strategic Plan, the VEC PAT recommendations, and the FAR class deviation to increase the incentive of Defense Contractors to submit VECs should result in greater use of VE and increased savings to DoD.

Summary of Audit Recommendations

The IG, DoD, recommended in Report No. 97-003 that DCMC issue a memorandum to all DCMC elements emphasizing the importance of VE. Specifically DCMC elements should screen contracts for VE clauses, and report and monitor VE efforts to ensure that savings are accurately reported. DLA agreed to issue a memorandum to DCMC field offices emphasizing the importance of VE and instructing them to adhere to the requirements of the DCMC guidance on VE.

Finding A. Implementation and Use of Value Engineering

The IG, DoD, recommended in Report No. 97-121 that the Navy implement the DoD VE Strategic Plan objective of improving VE support; require major commands to develop and maintain an annual VE plan, establish performance measures for VE program managers, and task the Navy Acquisition Center of Excellence to disseminate information on the appropriate uses of VE, and VE savings goals for Navy acquisition programs. The Navy partially concurred with the recommendations.

The Army Audit Agency recommended in Report No. AA 96-245 that the Director of Management direct major commanders to designate a VE officer to coordinate the VE Program. Army activities should also identify performance measures to manage the VE program. The Army Director of Management concurred with the recommendation.

The Army Audit Agency recommended in Report No. AA 96-194 that the Commander, Army Corps of Engineers direct VE officials to include the status of design work for all projects that meet the thresholds for VE studies in district program review meetings. The Commander, Army Corps of Engineers agreed to issue a memorandum advising districts of the importance of having VE officers take part in program review meetings.

The Air Force Audit Agency recommended in Project 96052027 that Air Force Civil Engineers publish and distribute annual call letters for VE plans, request command civil engineers establish procedures to analyze projects costing between \$1 million and \$10 million, instruct command civil engineers to accomplish VE studies on projects with program amounts over \$10 million, and request that command civil engineers ensure that an adequate portion of the command's allocation of planning and design funds is reserved for mandatory and justified VE studies. The Air Force Civil Engineer concurred with the recommendations.

Finding B. Validity of Reported Savings and Costs

Activity-level officials in the Military Departments and DLA did not properly track and report savings and costs from using VE. Also, savings related to other cost reductions were included in VE savings reported by some organizations. This condition occurred because:

- guidance did not clearly define VE or differentiate VE from other cost-reduction initiatives, and
- management controls did not require positive confirmation that the activity officials verified the accuracy of reported savings.

As a result, of the \$855 million of VE savings reported by the Military Departments and DLA for FY 1994, \$155.5 million was overstated and managers could not readily discern the overall effectiveness of the VE programs.

Reporting of VE Savings and Costs

OMB and DoD Guidance. Circular A-131 requires agencies to report the net life-cycle cost savings achieved from using VE by December 31 of each year. Agencies are to report the following data: cost savings and avoidances, expenditures (amount invested in VE during the year), and the dollar value of savings provided to contractors. On October 21, 1994, the Office of the Under Secretary of Defense for Acquisition and Technology requested that DoD Components submit their FY 1994 VE reports showing savings and estimated costs for the current and two subsequent years (three-year period). The reporting instructions stated that procurement savings resulting from VE should be calculated in accordance with FAR 52.248-1(g), "Calculating Net Acquisition Savings."

Review of Reported Savings. The audit reviewed reported FY 1994 VE savings by the Army, Navy, Air Force and the Defense Logistics Agency totaling approximately \$306.4 million. About \$155.5 million (\$102 million reported by the Navy, \$35.8 million by the Air Force, and \$17.7 million by DLA) was either related to other cost-reduction initiatives or computation errors and inadequate documentation.

Savings Related to Other Initiatives. One-hundred and twenty projects reported by DLA were based on competition and breakout on the procurement of spare parts and other supplies. DoD guidance did not address whether these savings should be reported in the VE annual report. The Military Departments, which also procured spare parts, generally did not report these cost-reduction initiatives as VE savings.

The Navy's AEGIS Program Office reported savings of \$38.2 million related to its Affordability Management Program as VE savings. Although the program provides for the VECP processing, none of the reviewed proposals were VECPs. About \$14.9 million resulted from incentive contracting provisions in the AEGIS DDG51 class ship fixed-price incentive-contract.

Another Navy command reported \$20.1 million of savings for two VECPs that included \$8.5 million attributable to foreign military sales requirements. Guidance for reporting VE savings does not state whether VE savings to foreign military sales customers should be reported or excluded.

Computation Errors and Inadequate Documentation. The audit identified errors and documentation problems with savings reported by the Navy, Air Force, and DLA. Four Navy commands did not accurately or consistently compute and report VE savings. Savings for 13 VECPs amounting to \$22.5 million were based on cost estimates in the VECPs rather than on negotiated contract amounts. One Navy command had no documentation to substantiate \$4.3 million of \$20.1 million reported for 2 VECPs. The same command reported \$475,400 for a VECP that was implemented 2 years earlier. The savings were reported late because of an administrative oversight by the command VE manager.

Three Air Force bases reported \$39.6 million in unsupported VE savings, and did not report another \$3.8 million in VE savings because organization-level comptroller and contracting officials were not required to sign the VE net savings report to certify accuracy. The DLA also reported about \$2 million in VE savings that were not supported by sufficient documentation.

VE Cost Reporting. The Military Departments and DLA did not properly report costs related to their VE programs. OMB Circular A-131 states that costs related to VE efforts should be reported during the fiscal year that the costs are incurred. Two of the three Army Corps of Engineers Districts reviewed did not report costs in the period they were incurred.

Four Navy commands reported VECP savings that were based on gross rather than net savings. The commands did not reduce the estimated gross savings by related costs on five VECPs. The commands did not reduce the estimated gross savings by the amount of VECP savings shared with the contractors on 18 VECPs. Three Navy commands did not report any Government costs for 11 VECPs although it was evident such costs would have been incurred. Another Navy command overlooked VECP implementation investment costs of \$12,765.

Conclusion

The Military Departments and DLA did not accurately report VE savings and cost data. As a result, the Military Departments and DLA reported about \$155 million in VE savings that were either unsupported or related to other cost reduction programs. Additional guidance and emphasis is needed to improve

Finding B. Validity of Reported Savings and Costs

the accuracy and completeness of reported data. Also, management controls over the collection and reporting of VE savings and cost data at DoD activities require improvement.

Summary of Recommendations

The IG, DoD, recommended in Report Nos. 97-003 and 97-121 that the Under Secretary of Defense for Acquisition and Technology task the DoD VE Engineering Executive Steering Group to develop guidance that differentiates VE application techniques and the reporting of VE savings from other cost-reduction initiatives. Also, require that savings be reported after in-house or contractor VECs are approved and implemented by contracts, contract modifications or revised procedures. The Director, Test, Systems Engineering and Evaluation concurred with the recommendations.

The IG, DoD, recommended in Report No. 97-003 that the Director, DLA, revise guidance in DLAR 4140.21 to differentiate VE application techniques and the reporting of VE savings from other cost-reduction initiatives and provide for reporting accurate information of all incurred costs associated with VE other established cost-reduction initiatives such as the DoD Spare Parts Breakout Program.

The Army Audit Agency recommended in Report AA 96-194 that the Commander, Army Corps of Engineers direct districts to have a mechanism to accurately capture costs related to VE studies, and instruct VE officers to report costs during the period incurred. The Command concurred with the recommendations.

The Air Force Audit Agency recommended in Project 95064042 that the Assistant Secretary of the Air Force (Acquisition) should require that installation-level comptroller or contracting officials sign the VE net savings report to certify the accuracy and validity. The Assistant Secretary of the Air Force (Acquisition) concurred with the recommendation.

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Part II - Additional Information

Appendix A. Audit Process

Audit Program

The Office of the Inspector General, DoD and the Military Department audit organizations jointly performed the audit and issued the following 12 audit reports that address the DoD VE Programs and adherence to OMB Circular No. A-131, "Value Engineering." These 12 audit reports are the basis of this summary report.

Inspector General, DoD

<u>Report No.</u>	<u>Report Title</u>	<u>Date</u>
97-121	The Navy Value Engineering Program	April 9, 1997
97-003	Defense Logistics Agency Value Engineering Program	October 9, 1996

Army Audit Agency

<u>Report No.</u>	<u>Report Title</u>	<u>Date</u>
AA 96-245	Value Engineering Program	July 23, 1996
AA 96-145	Value Engineering Program, U.S. Army Industrial Operations Command, Rock Island, Illinois	May 30, 1996
AA 96-194	Value Engineering Program, U.S. Army Corps of Engineers	May 8, 1996

<u>Report No.</u>	<u>Report Title</u>	<u>Date</u>
AA 96-138	Value Engineering Program, U.S. Army Missile Command, Redstone Arsenal, Alabama	March 18, 1996

AA 96-120	Value Engineering Program, Rock Island District, U.S. Army Corps of Engineers, Rock Island, Illinois	February 28, 1996
AA 96-118	Value Engineering Program, Savannah District, U.S. Army Corps of Engineers, Savannah, Georgia	February 16, 1996
AA 96-105	Value Engineering Program, Tulsa District, U.S. Army Corps of Engineers, Tulsa, Oklahoma	February 6, 1996
AA 96-107	Responses to Contractor Questionnaire, Audit of Value Engineering, Rock Island District, Corps of Engineers	January 22, 1996

Air Force Audit Agency

<u>Report No.</u>	<u>Report Title</u>	<u>Date</u>
96052027	Military Construction, Value Engineering Program	August 29, 1996
95064042	Value Engineering Program	May 8, 1996

Audit Standards. This economy and efficiency audit was made in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD, and the Army and Air Force Audit Agencies.

Contacts During the Audit. During the audit, individuals and organizations within DoD and other Federal agencies and private industry were visited or contacted. Additional information on the organizations and activities contacted or visited is available in the individual audit reports.

Management Control Program

DoD Directive 5010.38, "Internal Management Control Program," August 26, 1996, requires DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of Review of Management Control Program. The Army and Air Force Audit Agencies reviewed the effectiveness of management controls as they related to the Army and Air Force VE program. The Inspector General,

Appendix A. Audit Process

DoD, reviewed the adequacy of the Navy, DLA, and Office of the Under Secretary of Defense for Acquisition and Technology management controls related to VE savings and cost reporting.

Adequacy of Management Controls. The Army Audit Agency determined that the Army's key management controls were effective. The Army had implemented the OMB Circular and Army guidance regarding VE program operations. However, the Army could enhance and increase the effectiveness of its VE program by developing performance measures to assess its effectiveness and to help manage the program.

The Air Force Audit Agency determined that management control weaknesses existed at Air Force installations in collecting and reporting VE savings and cost data.

The Inspector General, DoD, determined that the Navy management controls were not adequate to ensure that VE savings were accurately computed and reported, and that VE was used on programs, projects, or systems with the most potential for savings. The Inspector General, DoD, also determined that DLA's management controls were not adequate to ensure that VE savings were accurately computed and reported.

Adequacy of Management's Self-Evaluation. Navy officials did not identify reporting VE savings and costs as an assessable unit and therefore, did not identify the management control weaknesses identified by the audit. DLA officials identified reporting and computing VE savings as an assessable unit; however, DLA assigned a low level of risk to that assessable unit and did no further testing. Air Force VE program management controls did not require a positive confirmation that the activity's comptrollers or contracting officials verified the accuracy of reported net savings.

Appendix B. Summary of Prior Coverage

President's Council on Integrity and Efficiency

"Value Engineering Project Summary Report," August 5, 1991. The report, which was based on audits and reviews performed by the Inspectors General of the Departments of Transportation, Justice, Health and Human Services, Interior, and the General Services Administration, stated that Federal Agencies had not maximized the use of VE to reduce costs, including the use of VE in grant programs. The report recommended that OMB revise and reissue Circular A-131 to strengthen and provide more definitive guidance for the implementation of VE. Additionally, the report recommended creation of an ad hoc committee, composed of representatives from OMB and applicable agencies, to share information among agencies for their mutual benefit and to support legislation requiring the appropriate use of VE in all Federal programs. OMB revised Circular A-131 to clarify agency implementation responsibilities and reissued the revised Circular May 21, 1993.

General Accounting Office

Report No. T-GUIDE-92-55, "Value Engineering: Usefulness Well Established When Applied Appropriately," June 1992. The General Accounting Office testified before the Subcommittee on Legislation and National Security, House Committee on Government Operations, that VE has proven to be a cost-saving technique. The report states that appropriate use of VE can result in proving indisputable benefits in construction, weapons, and system programs. The report further states that VE is one of many useful techniques for improving productivity and reducing cost but may not be useful in all cases reviewed. Accordingly, a VE Program should promote the effective use of VE but resources should be carefully allocated to prevent unnecessary or inappropriate reviews.

Inspector General, DoD

Report 88-195, "DoD In-House Value Engineering Program," August 22, 1988. The report stated that the DoD In-House Value Engineering Program served primarily as a vehicle for reporting savings accomplished by other initiatives, rather than through the application of VE techniques. Of the \$987 million in program savings claimed in FY 1986, \$705 million was the result of other cost reduction or savings initiatives. The report also states that another

Appendix B. Summary of Prior Coverage

\$192 million of VE reported savings were incorrectly reported. The problems were attributed to the lack of definitive guidance and resulted in ineffective program performance and the reporting of misleading program results.

The report recommended that DoD Directive 4245.8, "DoD Value Engineering Program," (now canceled) and DoD 4245.8-H, "DoD Value Engineering Handbook," be revised to provide for more precise criteria for defining in-house VE proposals and savings and to establish documented savings goals through annual plans. The report also recommended that the DoD VE committee review DoD Components goal-setting processes along with the annual review of VE plans. The report further recommended reporting in-house savings only in the fiscal year the proposal is implemented, and clarifying the elements of cost to report as VE. Finally, the report recommended that the DoD VE Program manager be directed to develop and implement procedures for critiquing the Directive 4245.8 requirement for management reviews of VE proposals with savings of \$100,000 or more. DoD initiated actions to implement the recommendations through DoD Directive 4245.8. However, DoD Directive 4245.8 was canceled February 23, 1991, because of the Defense Management Review. No replacement guidance was issued.

Appendix C. Report Distribution

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Appendix C. Report Distribution

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INTERNET DOCUMENT INFORMATION FORM

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E. Distribution Statement A: Approved for Public Release

F. The foregoing information was compiled and provided by:
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19991013 143